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| EXAMINER | |
|-------------|--------------|
| ALBRECHT, D | |
| ART UNIT | PAPER NUMBER |
| 115 | 6 |

DATE MAILED:

This is a communication from the examiner in charge of your application.

09/04/87

COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on 7-15-87 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), ~~days~~ from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474 | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

- ☒ Claims 1-12 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
- ☐ Claims _____ have been cancelled.
- ☐ Claims _____ are allowed.
- ☒ Claims 1-12 are rejected.
- ☐ Claims _____ are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.
- ☒ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
- ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
- ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
- ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
- ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections **MUST** be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
- ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received
☐ been filed in parent application, serial no. _____; filed on _____.
- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
- ☐ Other

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an enabling disclosure commensurate with the broad scope of the claims when M is solely calcium, magnesium or mercury and when A is other than copper. The art of high temperature (greater than 30°K) superconductors is an extremely unpredictable one. Small changes in compositions can result in dramatic changes in, or loss of superconducting properties. The amount and type of examples necessary to support broad claims increases as the predictability of the art decreases. See In re Fisher, 166 U.S.P.Q. 18, 24 and In re Angstadt and Griffin, 190 U.S.P.Q. 214, 218. Claims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 U.S.C. 112. See In re Cook, 169 U.S.P.Q. 298, 302 and Cosden Oil v. American Hoechst, 214 U.S.P.Q. 244, 262. In particular, the Examiner questions whether compositions in which M is solely calcium, magnesium or mercury and/or where A is other than copper will possess the superconducting properties sought by applicant. It should be

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noted that at the time this invention was made the theoretical mechanism of superconductivity in these materials was not well understood (this appears to still be the case today). Accordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated to exhibit high temperature superconductivity. A "patent is not a hunting license. It is not a reward for the search, but a reward for its successful conclusion", Brenner v. Manson, 383 U.S. 519; 148 U.S.P.Q. 689.

On remand 2. Claims 1, 5, 9, 10 and 12 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification. These claims are believed to be inoperatively broad and broader than the enabling disclosure when M is calcium, magnesium or mercury and when A is other than copper. See the discussion in paragraph 1 above.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to adequately teach how to make and use the invention of claims 9-12 and failing

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to present a best mode of carrying out the invention of claims 9-12. The specification presents no specific example carrying out this process. It is unpredictable as to which substrates would be suitable in such a process. The claimed substrate copper may not be suitable unless it has a protective coating thereon. See the Jin article of record. These claims also fail to define the composition or nature of the "glossy insulating layer phase and the "third phase" insulator. In addition the specification does not make it clear exactly what process is used to coat the composition onto the copper substrate. It is the Examiner's position that those of ordinary skill in this art would have to go through an undue amount of trial and error experimentation to figure out how to carry out the invention of claims 9-12 successfully. Given the unpredictability in this art, the failure to disclose a best mode in the present case cannot be excused. See In re Eltgroth, 164 U.S.P.Q. 221. A "Patent is not an invitation to experiment in order to determine the invention" (Westwood Chemical v. Dow, 189 U.S.P.Q. 649, 650, 664, 665). In an unpredictable art, absence of specific examples renders the application non-enabling. See In re Colianni, 195 U.S.P.Q. 150, 153. This case fails to adequately set forth any specific mode. Note In re Glass, 181 U.S.P.Q. 31, 35.

4. Claims 9-12 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification. These claims are based on insufficient disclosure as being non-enabling and failing to be supported

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by a best mode for the reasons discussed above in paragraph 3.

5. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are indefinite in failing to define the composition and nature of the "glossy insulating phase" and the "third" insulator phase.

cancelled 6. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are indefinite in the recital of the "quenching" step. How rapidly must this step be accomplished? Must it be accomplished in a matter of a few minutes? Must it be accomplished within a period of one hour? May it take several hours?

7. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Cancelled
8. Claims 1 and 5 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103 as obvious over Bednorz who discloses making superconducting compositions having the recited composition. The disclosure of Bednorz appears to anticipate the present claims. Accordingly, the burden of proof is upon applicants to show that the instantly claimed subject matter is different from and unobvious over that taught by this reference. See In re Brown, 173 U.S.P.Q. 685, 688; In re Best, 195 U.S.P.Q. 430 and In re Marosi, 218 U.S.P.Q. 289, 293.

Cancelled
9. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103 as obvious over the Michel article which discloses an electroconductive composition made by a process essentially identical to that recited in the instant claims. Although Michel does not specifically disclose the pressures used to compress the composition into a bar, it is believed that he pressures recited in the instant claims are conventional for this purpose in making ceramic compositions. Michel does not specifically disclose whether or not his compositions are superconducting at low temperatures, y

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wever, it is believed this characteristic is inherent in the compositions taught by this article. Applicant has not demonstrated otherwise. Accordingly, the burden of proof is upon applicants to show that the instantly claimed subject matter is different from and unobvious over that taught by this reference. See In re Brown, 173 U.S.P.Q. 685, 688; In re Best, 195 U.S.P.Q. 430 and In re Marosi, 218 U.S.P.Q. 289, 293.

Cancelled
10. Claims 1-8 are rejected under 35 U.S.C. 103 as being unpatentable over Bednorz and Michel as applied to claims 1 and 5 above, and further in view of Murata. At column 1, lines 45-63 Murata indicates that yttrium is considered equivalent to lanthanum in compositions of the recited general type. Accordingly, it would be obvious to substitute yttrium for lanthanum in the compositions of Bednorz or Michel. Although applicant has disclosed that he obtains a surprisingly high critical temperature when "x" is 0.4, applicant has not demonstrated that this occurs over the broad range of "x" recited in the present claims which can be as low as 0.01. Accordingly, applicant's showing of unexpected results with respect to the yttrium compound is not reasonably commensurate in scope with the broad claims presented.

11. The remaining references cited on the Forms PTO-892 further indicate the state of the art. Copies have not been provided of those references where copies were provided to applicant in the grandparent application Serial

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No. 002,089. Note that some of the broader claims in this application could also have been rejected over the Cock, Beyerlein and Gopalakrishnan references of record much in the manner done in the grandparent application Serial No. 002,089. This has not been done so as to avoid unnecessary duplication and because the Examiner believes that applicant will limit his claims to the cuprates thus avoiding any rejection over these references. If applicant does not limit his claim to cuprates, it is likely that these rejections will be applied against some of the claims in the next Office action.

12. The serial numbers of the parent applications on page 1 of the specification should be supplied. They are believed to be 002,089 and 006,991.

13. Because of the fast moving pace of research in the field of high temperature superconductors, many scientific developments in this area are available as "preprints" many weeks or months prior to publication in a journal. It is the Examiner's position that such preprints are prior art as a printed publication under 35 U.S.C. 102(a) or (b) as of the date they are first distributed. See 3M v. Ansul, 213 U.S.P.Q. 1024, 1037. Any information of the above noted type that is material to the presently claimed subject matter available prior to the effective filing date of this application that applicant(s) are aware of should promptly be made of record pursuant to M.P.E.P. 609 and 37 CFR 1.56.

14. Any evidence to be presented in accordance with 37 CFR 1.131 or 1.132 should be submitted before final

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rejection in order to be considered timely. It is anticipated that the next Office Action will be a final rejection.

15. The Examiner believes that an interview between the Examiner, applicant and his attorney may be helpful in identifying patentable subject matter and in drafting suitable claims thereto. If this suggestion is acceptable to applicant and his attorney, it is suggested that they contact the Examiner at the phone number listed below.

16. An inquiry concerning this communication should be directed to Dennis L. Albrecht at telephone number (703) 557-3593.

9-2-87:cdc



DENNIS ALBRECHT
PRIMARY EXAMINER
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